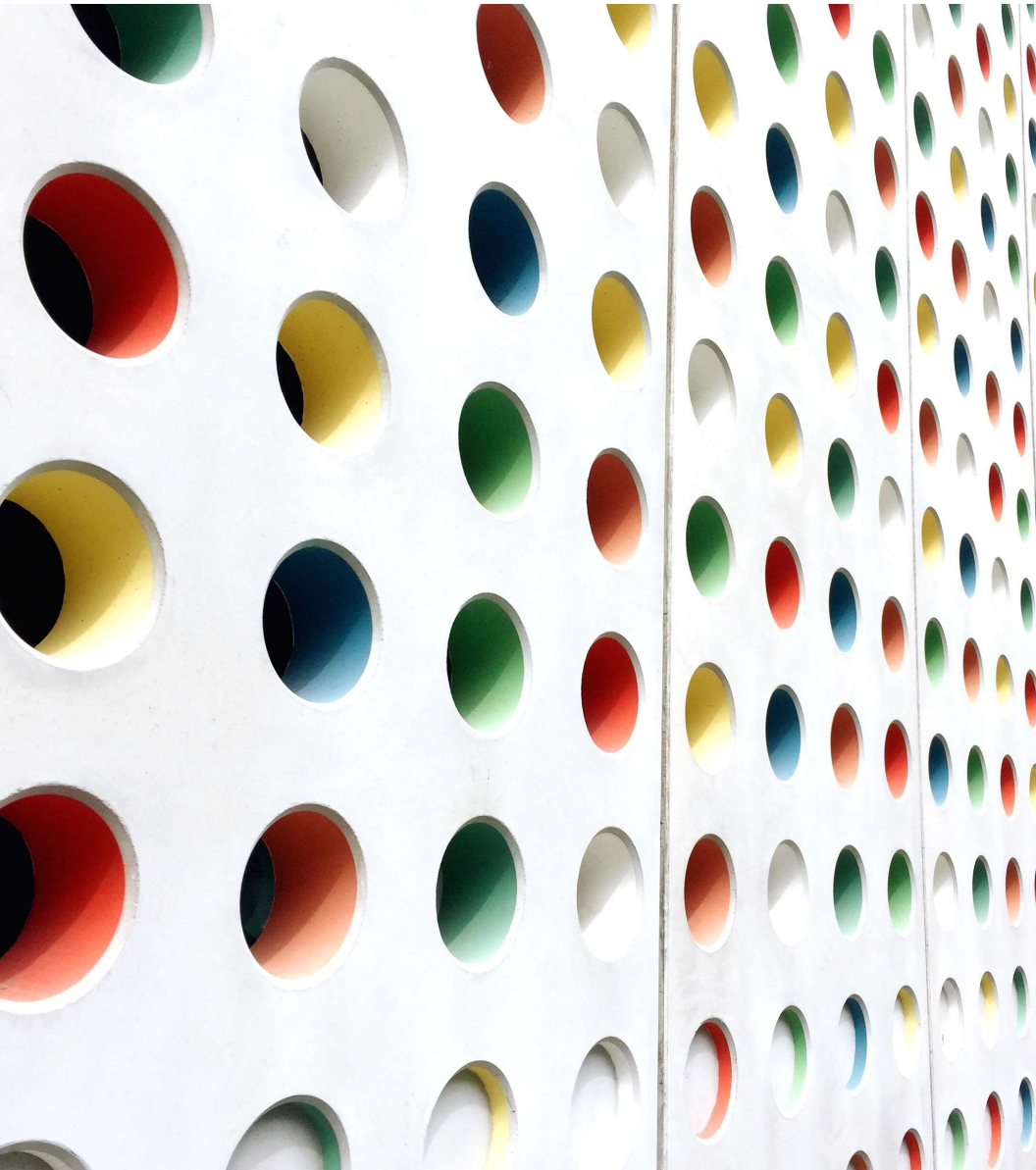


Peranan **ANALISIS** **FAKTOR** dalam Analisis Butir

Wahyu Widhiarso | Fakultas Psikologi UGM



Peranan Analisis Faktor dalam Seleksi Butir

Tiga Analisis Utama dalam Psikometrika



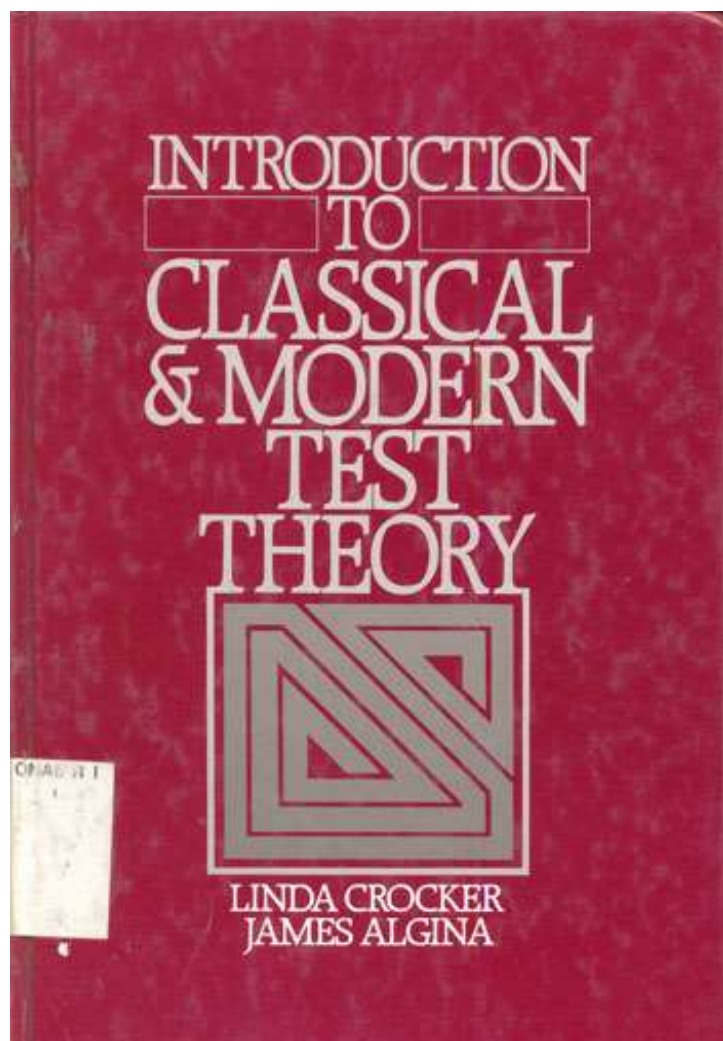
TEORI TES KLASIK



ANALISIS FAKTOR



TEORI RESPONS BUTIR



UNIT IV Item Analysis in Test Development

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Teori Tes Klasik

- Biasa dipakai sebagai landasan untuk melakukan analisis butir
- Memiliki beberapa properti psikometris (daya beda butir, tingkat kesulitan butir, efektivitas distraktor, reliabilitas pengukuran dsb)

Teori Tes Modern

- Biasa dipakai sebagai landasan untuk melakukan analisis butir
- Memiliki beberapa properti psikometris (daya beda butir, tingkat kesulitan butir, fungsi informasi butir-tes)

Teori Tes Klasik

- Scale Refinement
- Purification



Teori Tes Modern

- Item Calibration
- Scaling – Linking – Equating

Muncullah Analisis Faktor

Teori Tes Klasik

- Scale Refinement
- Purification

Analisis Faktor

- Dimensionalitas

Teori Tes Modern

- Item Calibration
- Scaling – Linking – Equating



**Ketiganya memiliki
Properti yang mirip**

Teori Tes Klasik

Analisis Faktor

Teori Tes Modern

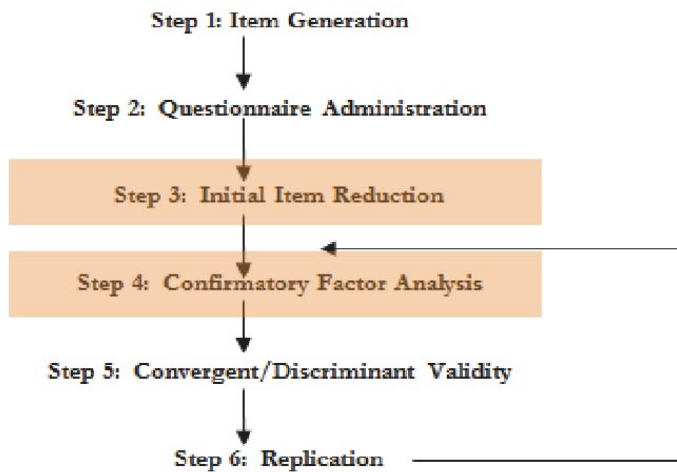
- Daya Diskriminasi
- Tingkat Kesulitan Butir



Pendekatan 1

Analisis Butir
Tes Klasik

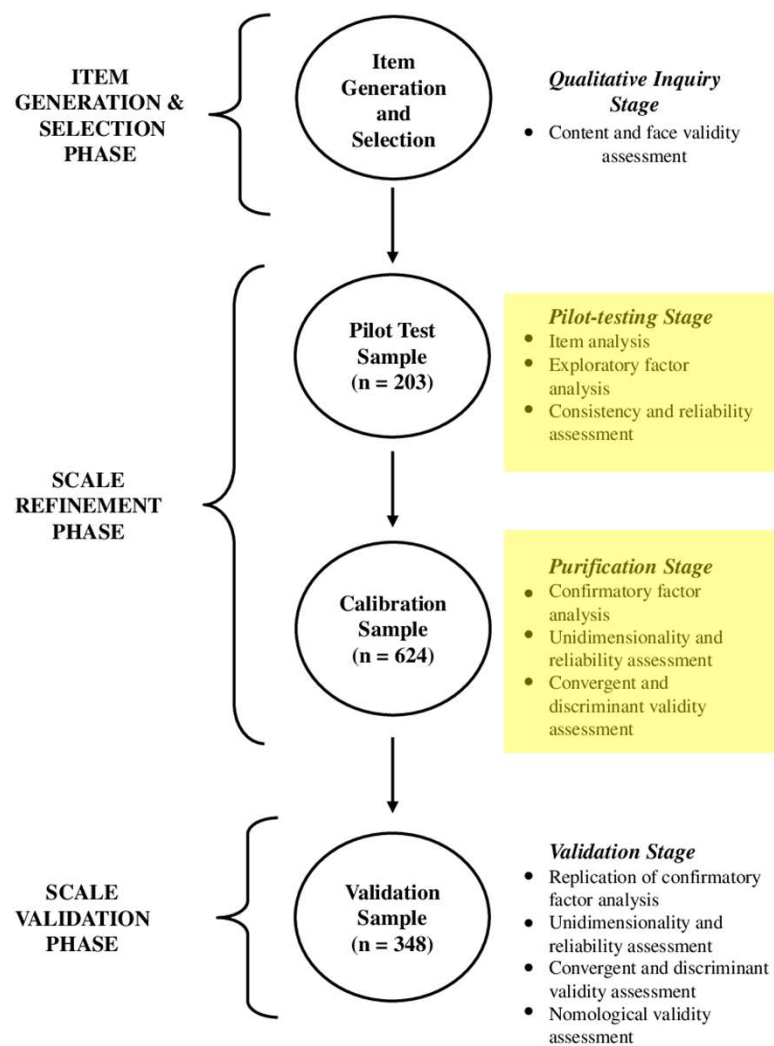
Analisis
Faktor

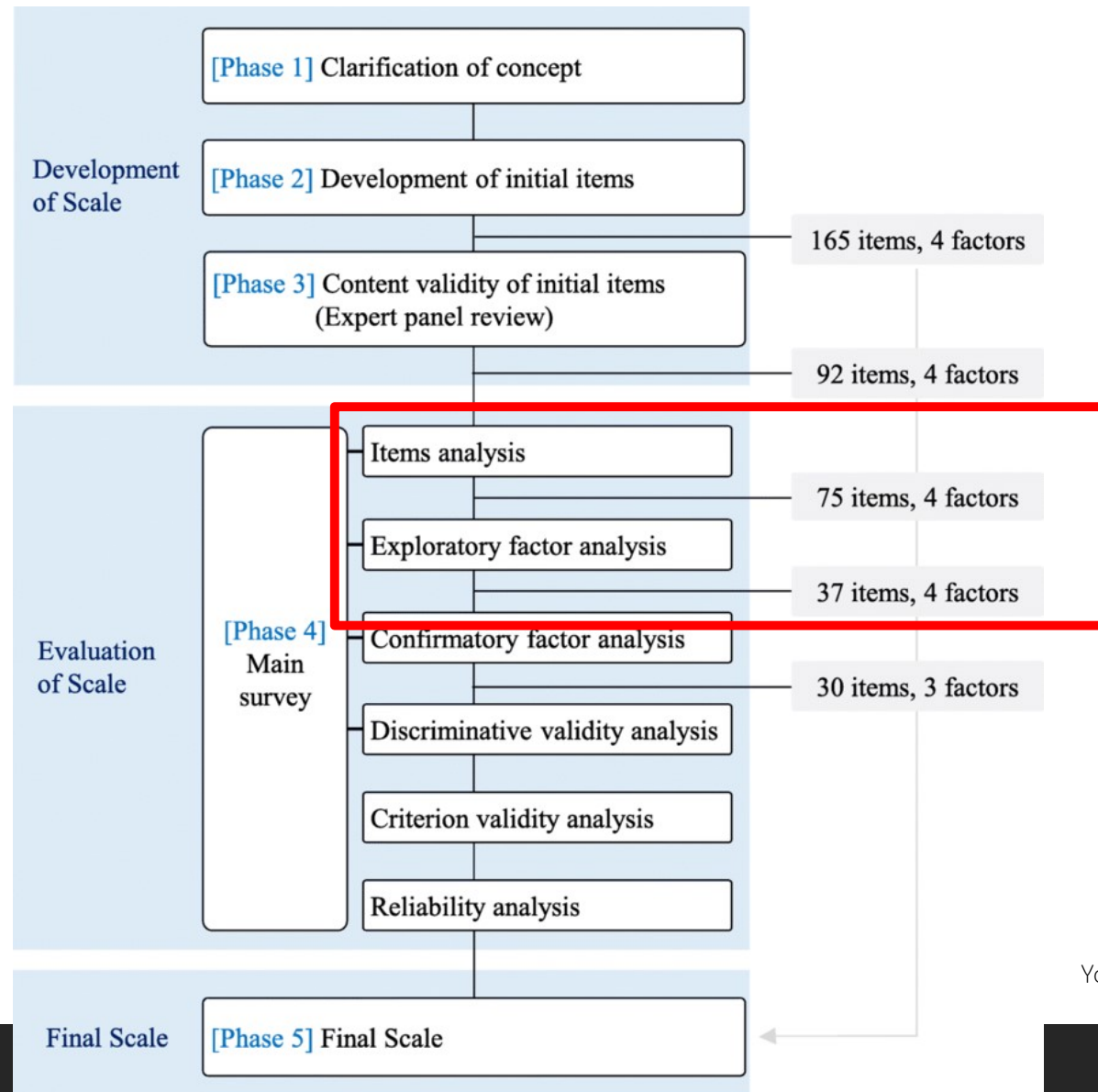


Hinkin, 1998

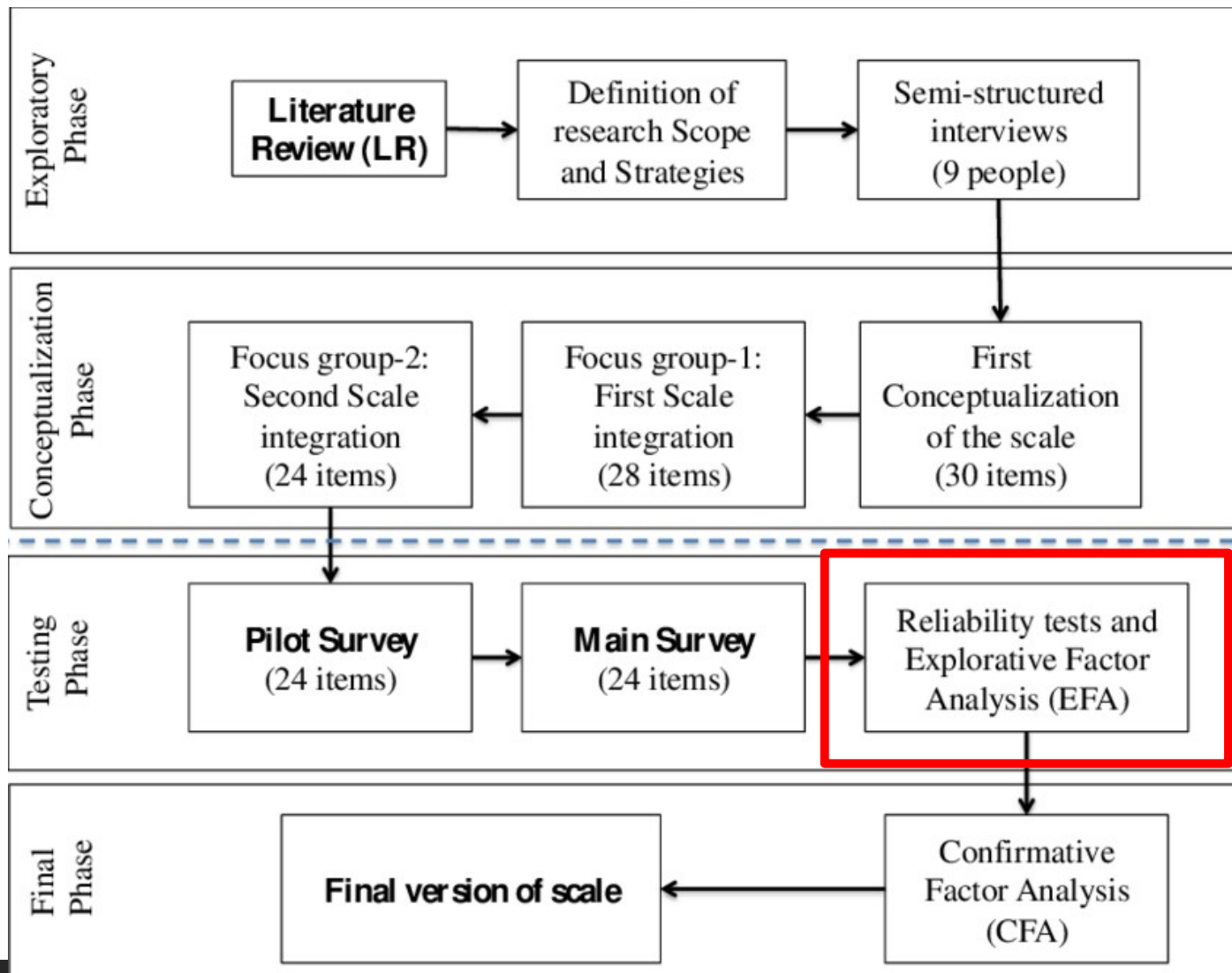
Apa alasannya?

Analisis butir dulu baru
pengujian validitas struktural





Yoon, 2021



Pendekatan 2



Analisis Butir
Tes Klasik

Analisis
Faktor


Step 3: Designing and Conducting Studies to Develop and Refine the Scale

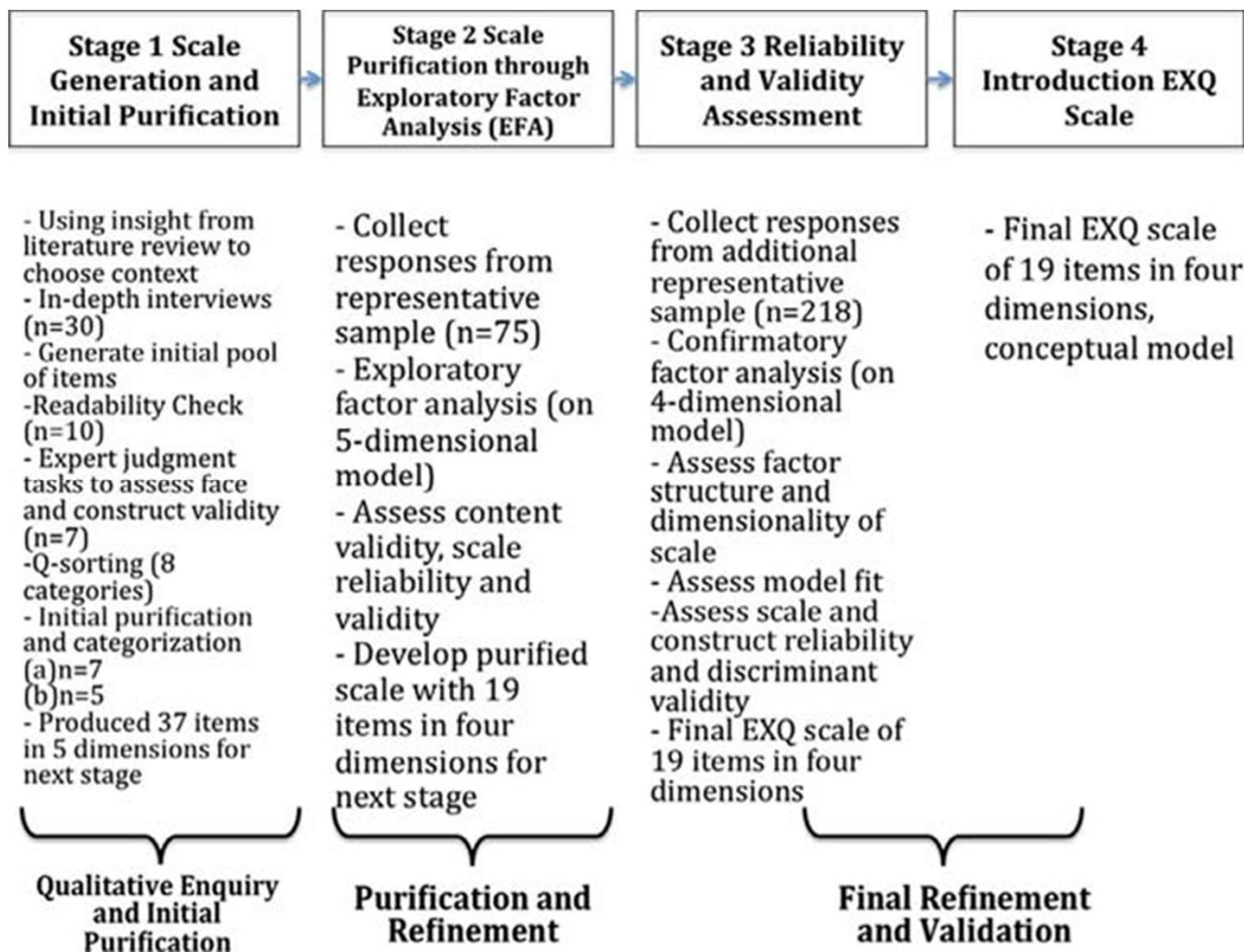
Issues to Consider:

- (a) Pilot testing as an item-trimming procedure
- (b) The use of several samples from relevant populations for scale development
- (c) Designing the studies to test psychometric properties
- (d) Initial item analyses via exploratory factor analyses (EFAs)
- (e) Initial item analyses and internal consistency estimates
- (f) Initial estimates of validity
- (g) Retaining items for the next set of studies

Apa alasannya?

Analisis butir perlu dilakukan per dimensi sehingga analisis faktor diperlukan di awal





Pendekatan 3



Analisis
Faktor

Apa alasannya?

Analisis faktor memiliki fungsi sama dengan analisis butir namun lebih tepat karena sesuai dengan model

Constructing Validity: Basic Issues in Objective Scale Development

Lee Anna Clark and David Watson
The University of Iowa

A primary goal of scale development is to create a valid measure of an underlying construct. We discuss theoretical principles, practical issues, and pragmatic decisions to help developers maximize the construct validity of scales and subscales. First, it is essential to begin with a clear conceptualization of the target construct. Moreover, the content of the initial item pool should be overinclusive and item wording needs careful attention. Next, the item pool should be tested, along with variables that assess closely related constructs, on a heterogeneous sample representing the entire range of the target population. Finally, in selecting scale items, the goal is unidimensionality rather than internal consistency; this means that virtually all interitem correlations should be moderate in magnitude. Factor analysis can play a crucial role in ensuring the unidimensionality and discriminant validity of scales.

Scale development remains a growth industry within psychology. A PsycLIT database survey of articles published in the 6-year period from 1989 through 1994 revealed 1,726 articles with the key words "test construction" or "scale development" published in English-language journals, 270 in other-language journals, and 552 doctoral dissertations. During this same period (i.e., beginning with its inception), 50 articles addressing scale development or test construction were published in *Psychological Assessment* alone. The majority of these articles reported the development of one or more new measures (82%); most of the rest presented new scales derived from an existing instrument (10%). We use these 41 scale-development articles

signed to be completed by clinicians, parents, teachers, spouses, peers, and so forth.

Before proceeding further, it is interesting to examine the new measures comprising our *Psychological Assessment* sample. This examination sample offers a glimpse at why scale development continues unabated, as well as the nature of the unmet needs these scale developers are seeking to fill. First, not surprisingly given this journal's focus, more than half (61%) of the scales assess some aspect of psychopathology, personality, or adjustment. The next most common categories are measures of attitudes and interpersonal relations (20% and 15%, respectively). The remaining scales assess a miscellany of behaviors, abilities, response validity,



Does item homogeneity indicate internal consistency or item redundancy in psychometric scales?

Gregory J. Boyle

[Show more](#) ✓

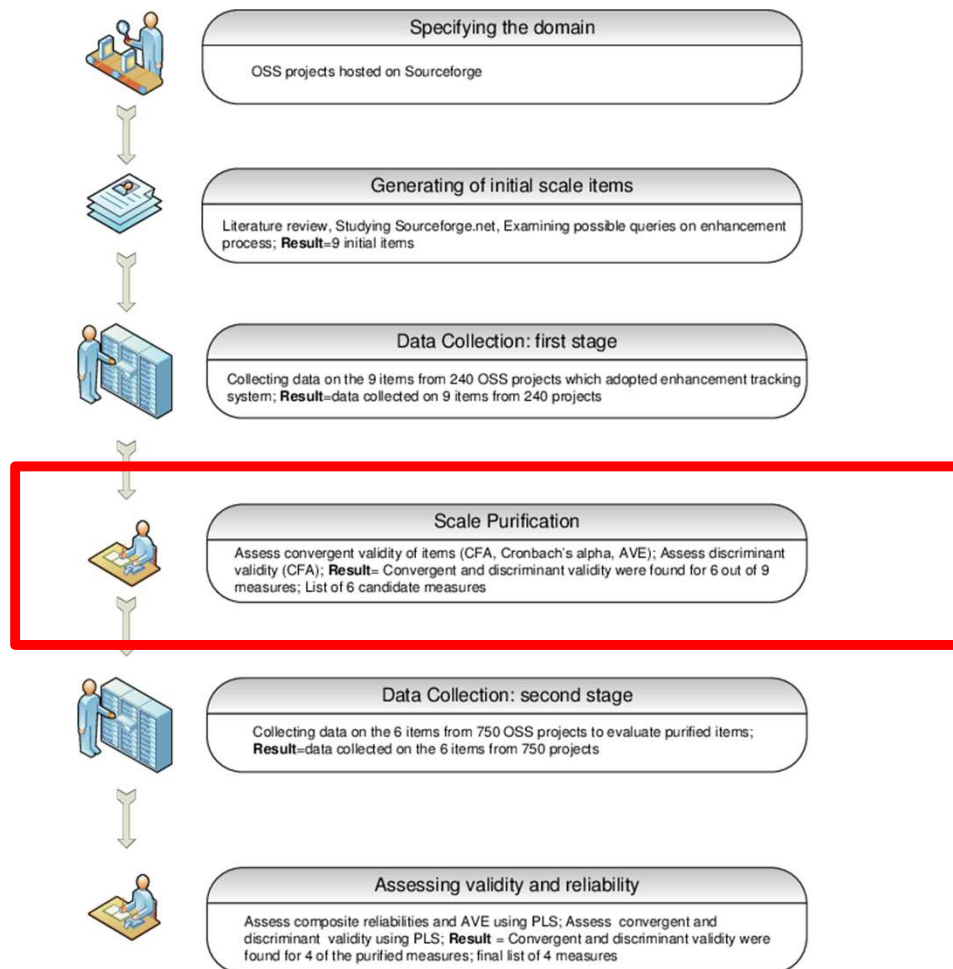
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[https://doi.org/10.1016/0191-8869\(91\)90115-R](https://doi.org/10.1016/0191-8869(91)90115-R)

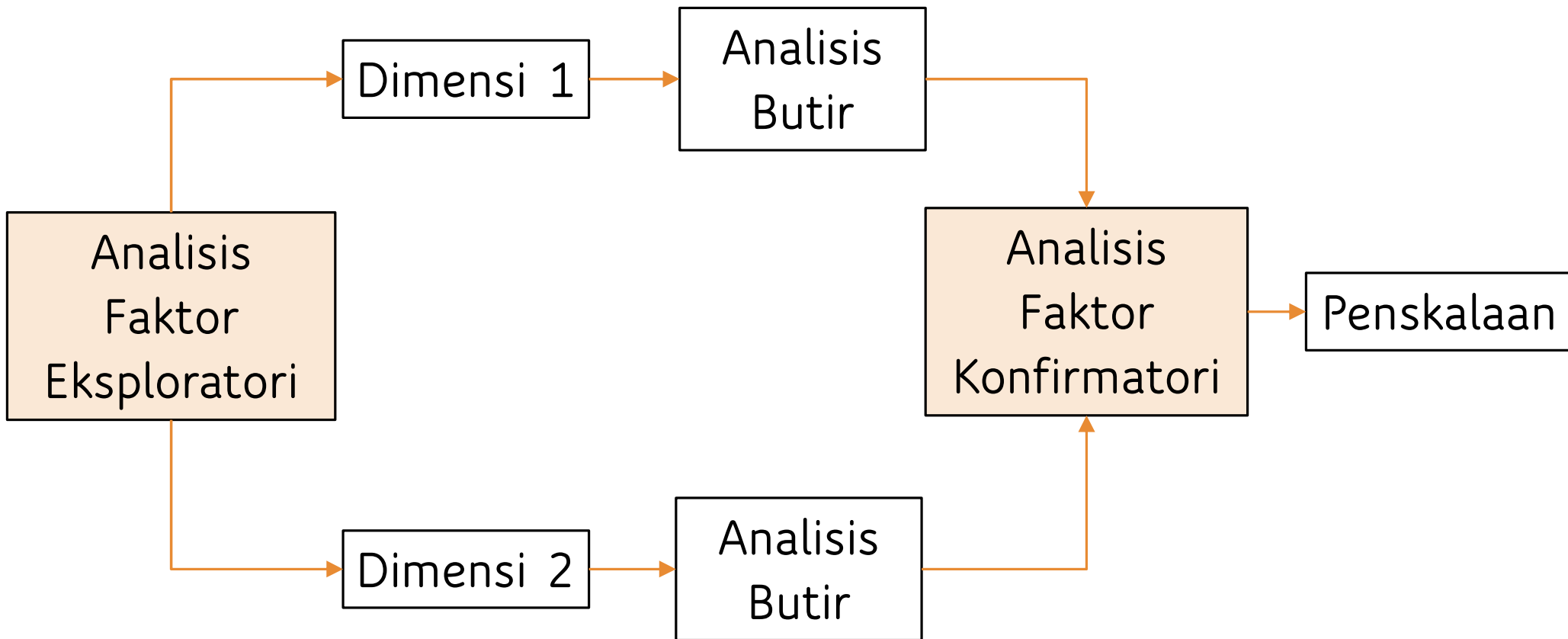
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Abstract

The term 'internal consistency' has been used extensively in classical psychometrics to refer to the reliability of a scale based on the degree of within-scale item intercorrelation, as measured by say the split-half method, or more adequately by Cronbach's (1951) (*Psychometrika*, 16, 297–334) alpha, as well as the KR_{20} and KR_{21} coefficients. This term is a misnomer, as a high estimate of internal item consistency/item homogeneity may also suggest a high level of item redundancy, wherein essentially the same item is rephrased in several different ways.

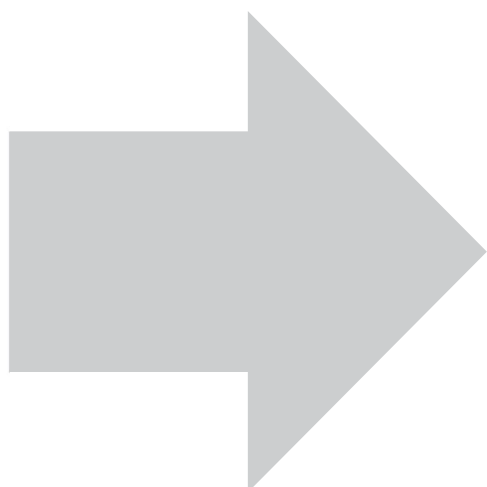


Manakah yang perlu diikuti?



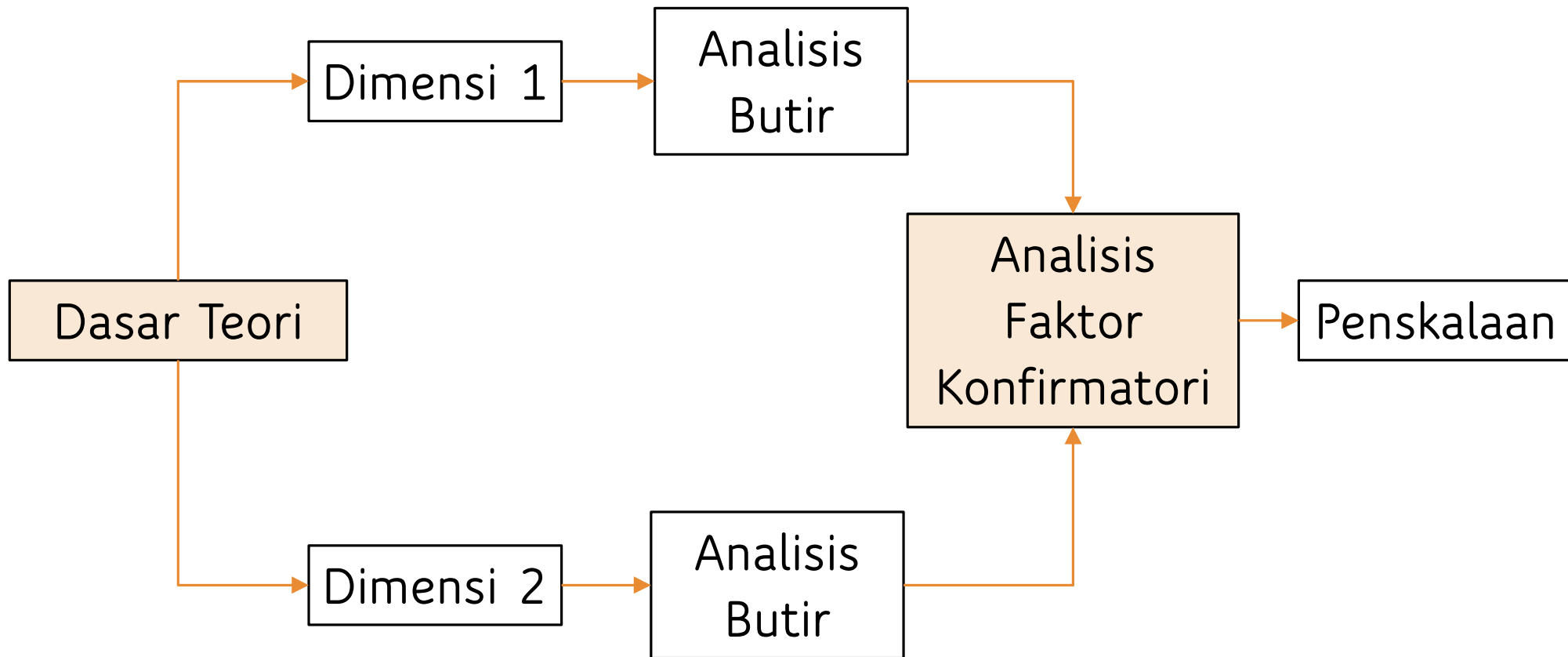
Item Reliability Statistics

	item-rest correlation	if item dropped
		Cronbach's α
bi_01	0.7826	0.904
bi_02	0.0501	0.919
bi_03	0.7762	0.905
bi_04	0.1813	0.918
bi_05	0.7530	0.905
bi_06	0.8083	0.904
bi_07	0.0688	0.919
bi_08	0.8547	0.902
bi_09	0.1978	0.917
bi_10	0.0519	0.918
bi_11	0.7604	0.905
bi_12	0.1602	0.917
bi_13	0.0736	0.918
bi_14	0.8404	0.903
bi_15	0.8055	0.904
bi_16	0.8029	0.904
bi_17	0.1984	0.917
bi_18	0.7000	0.907
bi_19	0.8121	0.904



Item Reliability Statistics

	item-rest correlation	if item dropped
		Cronbach's α
bi_02	0.678	0.870
bi_04	0.792	0.857
bi_07	0.685	0.869
bi_09	0.797	0.857
bi_10	0.525	0.888
bi_12	0.429	0.891
bi_13	0.598	0.877
bi_17	0.826	0.855



Teori Tes Klasik

- Scale Refinement
- Purification

Analisis Faktor

- Dimensionalitas

Teori Tes Modern

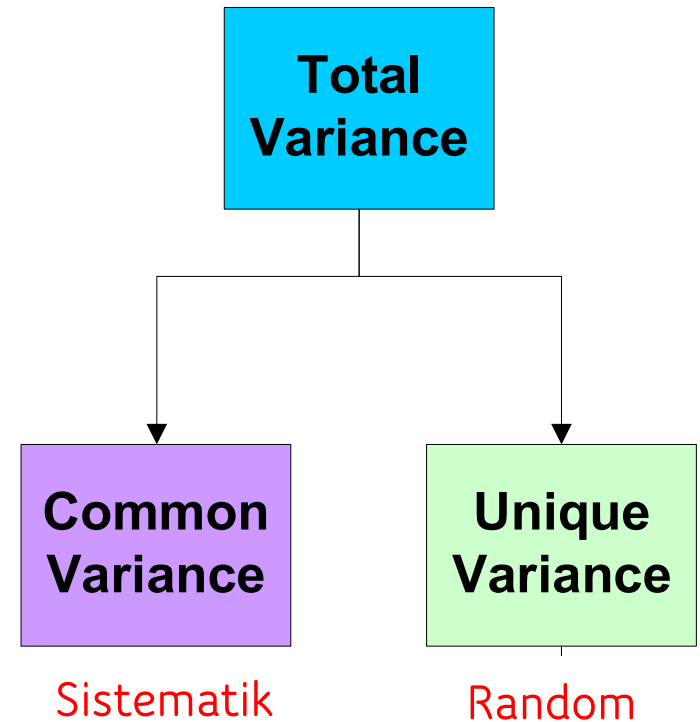
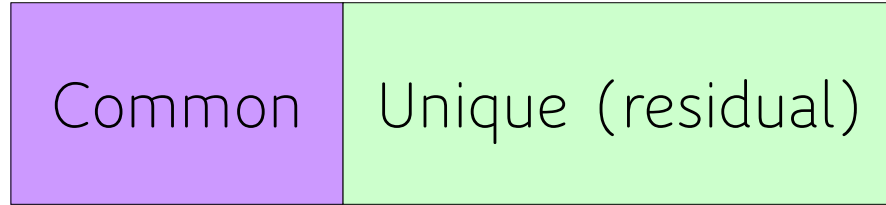
- Item Calibration
- Scaling – Linking – Equating



Analisis Faktor

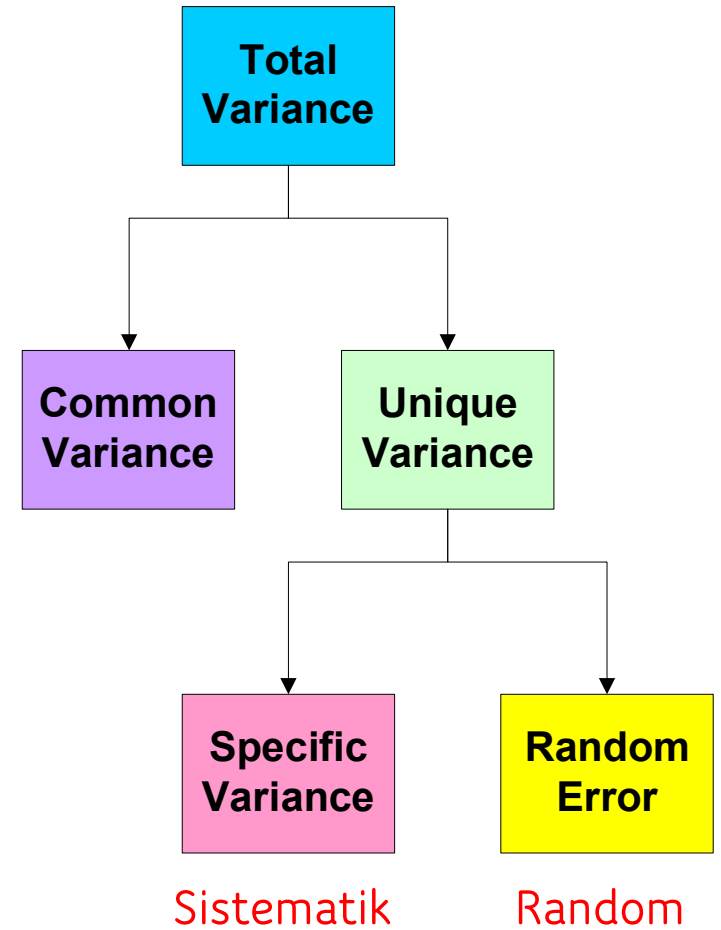
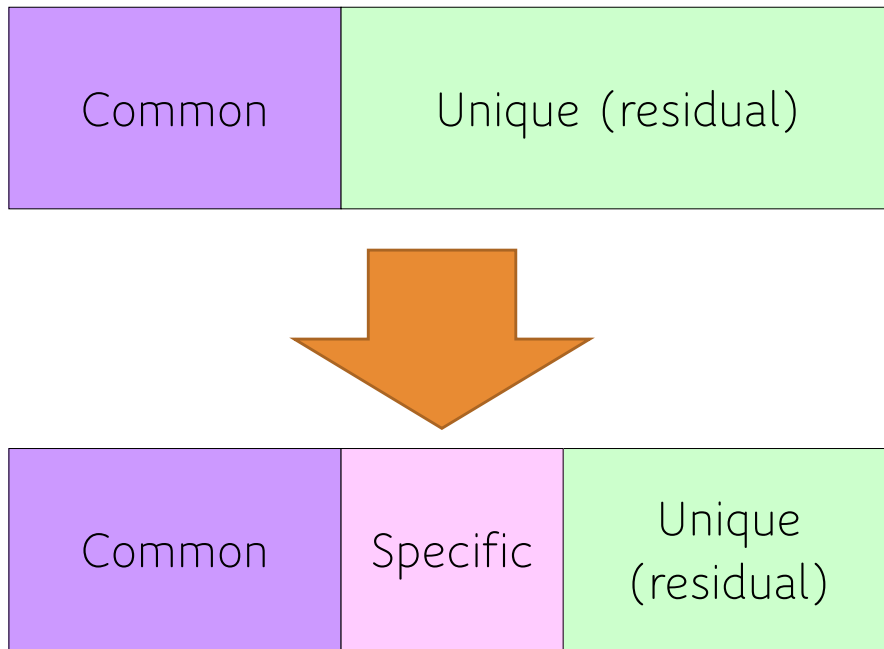
- Dipakai untuk mengidentifikasi struktur pengukuran
- Struktur pengukuran menunjukkan berapa faktor atau dimensi dalam suatu konstruk ukur alat atau alat ukur serta keterkaitan di antara dimensi tersebut
- Melalui analisis faktor peneliti mengembangkan model tertentu untuk memaksimalkan varians skor hasil pengukuran

Total Variance



1. Saya suka berteman [Ya]
2. Saya suka menyapa orang lain [Ya]
3. Saya suka menolong [Tidak]

Total Variance

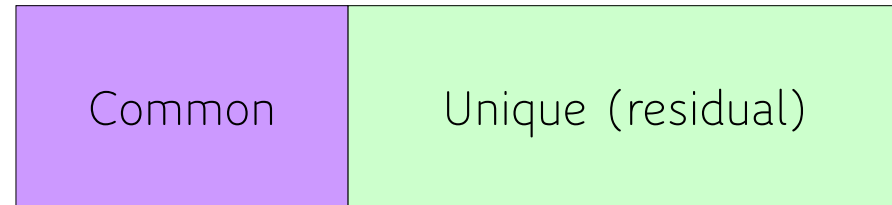


Ilustrasi

Item Reliability Statistics

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Total Variance



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Total Variance



Kapan Menggunakan Analisis Faktor?

- Mengidentifikasi struktur data
- Menguji validitas faktorial/konstruktif/struktural
- Menguji validitas divergen/konvergen

Semoga Bermanfaat
